



Testimony of Jeff Passmore, Executive Vice President
Iogen Corporation

before the
United States House of Representatives
Full Committee on Agriculture

Public Hearing
“Review of Agriculture’s Role in the Renewable Fuels Market”

Thursday, June 29, 2006
1300 Longworth House Office Building
Washington, DC

Good morning Mr. Chairman and Members of the Committee. Thank you for giving me the opportunity to appear before you on this important issue. My name is Jeff Passmore. I am Iogen’s Executive Vice President.

Iogen is the world leader in making ethanol from cellulose. Iogen also operates a commercial business in the manufacture of enzymes for use in the textile, pulp and paper, and livestock feed industries. We have 190 employees.

Today we are here to talk about Iogen’s interest in the commercialization of cellulose ethanol. Iogen has been active in this field since the late 1970’s and since that time, has committed more than \$175 million in technology and commercial development. Our partners include Shell and Goldman Sachs.

Iogen designed, built and operates the world’s only cellulose ethanol demonstration plant at a cost of \$40 million. This facility has been producing cellulose ethanol since April 2004. To ensure there is no confusion, all ethanol is essentially the same – no matter what the feedstock. What is unique about cellulose ethanol is that it is derived from the non-food residue portion of the crop. For example, in the case of cereal grains such as wheat, barley and rice, it is not the grain, but rather the straw, that is the feedstock for our process. The same is true for corn, where our process uses the cobs, stalks and leaves, commonly referred to as “corn stover.”

There has been a lot of attention paid to cellulose ethanol over the past few months, not the least of which was the President's mention of new sources of ethanol in his most recent State of the Union address. My message for you today is this: Cellulose ethanol is ready to go.

Based on Iogen's experience with its demonstration facility, we are ready to break ground on a commercial-scale biorefinery in the summer of 2007, and plan to be supplying ethanol to commercial markets by 2009. After the first plant is built, we anticipate the development of a multi-plant, multi-billion-gallon industry.

So what is the size of this opportunity, and what will it mean for American Agriculture? Allow me to quote from an April 2005 DOE / USDA report – commonly referred to as the “billion ton study.”

“The purpose of this report is to determine whether the land resources of the United States are capable of producing a sustainable supply of biomass sufficient to displace 30% of the country's present petroleum consumption. (i.e. 60 billion gallons per year)... 1 billion dry tons of biomass feedstock per year. The short answer to the question ... is yes.” [U.S. Department of Agriculture and U.S. Department of Energy, “Biomass as Feedstock for a Bioenergy and Bioproducts Industry: The Technical Feasibility of a Billion-Ton Annual Supply” (2005): executive summary]

Let's translate that statement into terms that might mean more to an individual farmer. Iogen has identified Southeast Idaho as a prime candidate location for its first commercial plant. In this area we have signed contracts for the annual supply of 356,000 tons of barley and wheat straw from 320 growers in 14 counties. These contracts, which will pay an average delivered price of \$45 per ton, are structured to float with the world price of oil. Assuming \$50 per barrel oil, and a yield of 2 tons of straw per acre, a farmer will receive \$24 per acre for straw lying in the field. Some growers have chosen to generate additional income by being involved in the baling and trucking of the straw to the plant gate. The straw collection activity alone will plow millions of dollars into the community - not counting the revenue generated through permanent job creation and during the plant construction period.

This same story can be repeated in rural communities all across America (see maps). As the attached maps indicate, there is sufficient agricultural residue in rural America to support dozens of plants similar to or larger than the one we propose to build in Idaho.

So why don't we just build the plant? Fundamentally, it is because cellulose ethanol facilities have never been built at commercial scale before, and lenders do not provide project debt financing to technologies that are unproven at commercial scale unless that debt is guaranteed by a strong credit rating such as a government's.

The U.S. Congress recognized this market failure in the Energy Policy Act of 2005 and put in place loan guarantee provisions for emerging technologies such as cellulose ethanol.

It is important that the Administration continue to push for implementation of this loan guarantee initiative as soon as possible because, as a domestically derived renewable biofuel, cellulose ethanol can help meet a number of important government policy objectives. These include:

- reduced oil imports leading to improved energy and economic security
- new income and jobs for rural communities
- improved environmental protection and reduced greenhouse gas emissions.

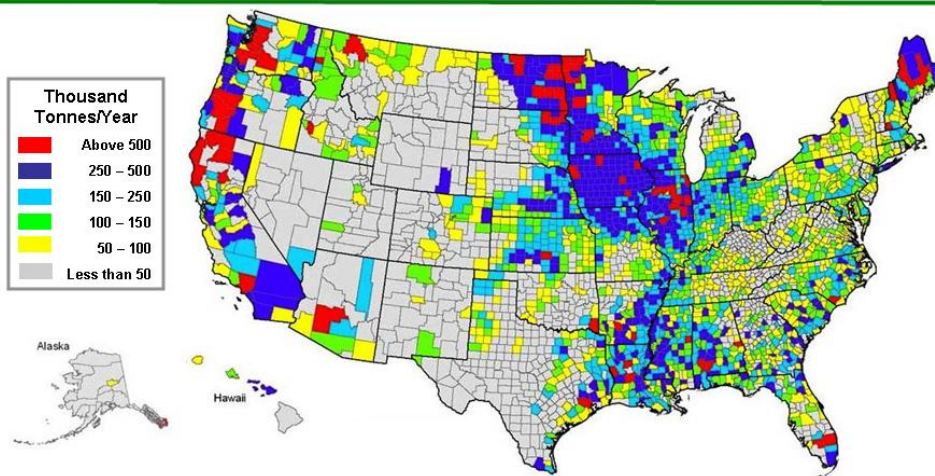
The private sector has invested a considerable amount of money getting cellulose ethanol to the point of being “ready to go.” That same private sector is now ready to invest significant equity into the commercialization of this exciting new form of ethanol. But because of the public policy goals cellulose ethanol commercialization helps achieve, the private sector wants to share the risk of technology commercialization with government.

Together, industry, government, and the American farmer, can get the job done. We can create new sources of income for agriculture, make America less dependant on imported fossil fuel from the Middle East, and help protect the environment.

Thank you. I look forward to your questions.



States capable of supporting a cellulose ethanol industry



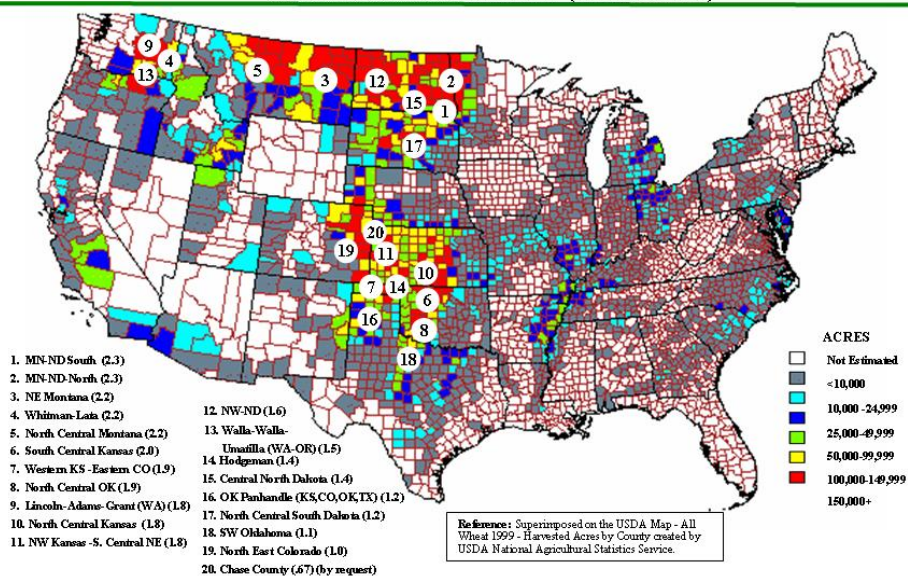
This study estimates the technical biomass resources currently available in the United States by county. It includes the following feedstock categories:

- Agricultural residues (crop and animal manure);
- Wood residues (forest, primary mill, secondary mill and urban mill);
- Municipal discards (methane emissions from landfill and domestic wastewater treatment);
- Dedicated energy crops (on Conservation Reserve Program and Abandoned Mine Lands).



Iogen Cellulose Ethanol Plant Preliminary U.S. Feedstock Availability Assessment

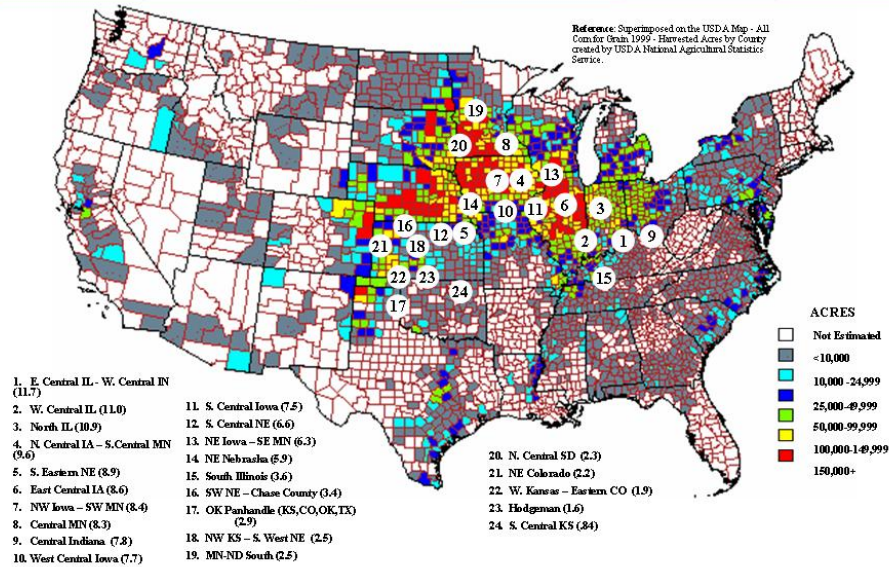
Based on total wheat and barley straw averages for 1999/2000
drawn within a 100 km radius (metric tonnes)





Iogen Cellulose Ethanol Plant Preliminary U.S. Feedstock Availability Assessment

Based on total corn stover averages for 1999/2000
drawn within a 100 km radius (metric tonnes)



Iogen's Demonstration Cellulose Ethanol Plant

